REMARKS

This Application has been carefully reviewed in light of the Final Office Action mailed November 3, 2003. At the time of the Office Action, Claims 1, 3-5, 7-12, and 14-20 were pending in this patent application. Claims 1, 3-5, 7-12, and 14-20 were rejected. Applicants have amended Claims 1, 5, 8, 9, 12, 15, and 16 to more clearly claim what the inventors believe to be the invention. Applicants have added new Claims 21-37. Applicants respectfully request reconsideration and favorable action in this case.

Section 102 Rejections

Claims 1, 4, 5, 7-12, 14-16, and 18-20 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,190,275 issued to Mileti ("*Mileti*"). Applicants respectfully traverse these rejections for the reasons stated below.

New Claim 21 has been added and is fully supported by the original specification. New Claim 21 recites many features and operations that are similar to the claims rejected by the Examiner. Specifically, new independent Claim 21 recites:

> A roadway crash cushion comprising:
>
> a first cambered, substantially planar panel having a first plurality of bends, the first cambered panel formed of a substantially self-restoring thermoplastic material comprising polyethylene;
>
> a second cambered, substantially planar panel having a second plurality of bends, each of the second plurality of bends corresponding to one of the first plurality of bends, the second cambered panel formed of a substantially self-restoring thermoplastic material comprising polyethylene;
>
> a plurality of diaphragms coupling the first cambered panel and the second cambered panel, the first and second panels being spaced apart such that an array of collapsible cells are formed between the first and second panels, the diaphragms cooperating with the first and second panels to form the array of collapsible cells between the first and second panels, each of the array of collapsible cells having a hexagonal shape, the array of collapsible cells comprising:

> a first plurality of cells, each of the first plurality of cells of a first size; and
>
> a second plurality of cells, each of the second plurality of cells of a second size, the second plurality of cells of the second size being smaller than the first plurality of cells of the first size, the second plurality of cells downstream from the first plurality of cells; and
>
> at least two longitudinal, ground-mounted rail members each engaged with the plurality of diaphragms to allow for slidable movement of the diaphragms along the rail member as the collapsible cells collapse;
>
> wherein the thermoplastic material of the first and second panels substantially returns the first and second panels to their initial form after the collapsible cells collapse.

In order to establish a *prima facie* case of anticipation, all the elements of the claimed invention must be found within a single prior art reference. *Dewey & Almy Chemical Co. v. Mimex*, 124 F.2d 986, 52 USPQ 138 (2d Cir. 1942). In addition, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claims" and "[t]he elements must be arranged as required by the claim." *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989); *In re Bond*, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990); MPEP § 2131 (*emphasis added*). Applicants respectfully submit that each and every element of new independent Claim 21 is not found within the *Mileti* reference.

For example, *Mileti* does not disclose, teach, or suggest "the first and second panels being spaced apart such that an array of collapsible cells are formed between the first and second panels," as recited in new independent Claim 21. Rather, *Mileti* discloses an impact attenuator that includes four individual modules 14, 16, 18, and 20 that each include "a series of expanded plastic sheets 22 sandwiched in face-to-face contact between stiffener plates 24." (Column 2, lines 34-40). "[T]ypically six or seven sheets are assembled in face-to-face contact and then wrapped with a tough weather proof vinyl wrapping 30." (Column 2, lines 62-64). As such, sheets 22 lie adjacent to one another and are in contact one another. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." *W.L. Gore & Associates, Inc. v. Garlock, Inc.* 721 F.2d 1540 (Fed. Cir. 1983); M.P.E.P. § 2141.02. Because *Mileti* discloses that the sheets are in contact with one another, *Mileti* teaches away from "first and second panels being spaced apart such that an array of collapsible cells are formed between the first and second panels," as recited in Applicants' Claim 21.

As another example, *Mileti* does not disclose, teach, or suggest "a first cambered, substantially planar panel having a first plurality of bends . . . [and] a second cambered,

substantially planar panel having a second plurality of bends, each of the second plurality of bends corresponding to one of the first plurality of bends," as recited in Applicants' new Claim 21. To the contrary, *Mileti* discloses that each sheet is "expanded in accordance with the process disclosed in U.S. Pat. Nos. 3,919,380 and 3,919,382." (Column 2, lines 47-50). A plastic sheet having an original thickness of 0.187 inches may be expanded to 3.5 inches. (Column 4, lines 29-34). "[R]ather than a hexagonal prismatic cell of the true honeycomb the expanded plastic sheet has interlocking oppositely facing open-ended pyramidal cells 25 and 26 the axis of which are essentially parallel and extend normal to the opposite faces 27 of the sheets. The bases of the cells are open through circular openings 28 and 29 in the respective sheet faces 27." (Column 2, lines 54-61). As such, *Mileti* discloses that each parallel sheet 22 within a module 14, 16, 18, and 20 is expanded using specific processes to form an individual quasi-honeycomb structure. (Figures 4, 5, and 6). The pyramidal cells are formed within the plastic making up each individual sheet. Accordingly, the impact attenuator of *Mileti* does not include "a first cambered, substantially planar panel having a first plurality of bends . . . [and] a second cambered, substantially planar panel having a second plurality of bends, each of the second plurality of bends corresponding to one of the first plurality of bends," as recited in Applicants' new Claim 21.

As still another example, *Mileti* does not disclose, teach, or suggest "the first cambered panel formed of a substantially self-restoring thermoplastic material comprising polyethylene . . . [and] the second cambered panel formed of a substantially self-restoring thermoplastic material comprising polyethylene," as recited in Applicants' new Claim 21. To the contrary, the impact attenuator disclosed in *Mileti* includes plastic sheets 22 "fabricated from a thermoplastic polymer ionomer resin sold by E.I. DuPont under the trademark SURLYN." (Column 2, lines 42-45). *Mileti* further discloses that the performance of the impact attenuator is "due to the nature of the plastic cellular material, to the thickness of the original solid sheet of plastic material and to the height to which it is drawn." Thus, the particular materials, i.e. SURLYN, used to form sheets 22 are important to the performance of the impact attenuator disclosed in *Mileti*. Accordingly, *Mileti* cannot be said to disclose, teach, or suggest "the first cambered panel formed of a substantially self-restoring thermoplastic material comprising polyethylene . . . [and] the second cambered panel formed of a substantially self-restoring thermoplastic material comprising polyethylene," as recited in Applicants' Claim 21.

As still another example, *Mileti* does not disclose, teach, or suggest "each of the array of collapsible cells having a hexagonal shape," as recited in Applicants' new Claim 21. Rather, *Mileti* specifically teaches away from the use of hexagonally shaped cells. Specifically, *Mileti* discloses that the processes used to expand sheets 22 result in a "quasi-honeycomb structure." (Column 2, liens 51-54). "Rather than a hexagonal prismatic cell of the true honeycomb the expanded plastic sheet has interlocking oppositely facing open-ended pyramidal cells 25 and 26 the axis of which are essentially parallel and extend normal to the opposite faces 27 of the sheets." (Column 2, lines 54-59). As discussed above, *Mileti* also discloses that the "performance" of the impact attenuator of *Mileti* is "due to the nature of the plastic material, to the thickness of the original solid sheet of plastic material and to the height to which it is drawn." (Column 4, lines 26-29). As such, *Mileti* explicitly teaches away from "each of the array of collapsible cells having a hexagonal shape," as recited in Applicants' new Claim 21.

For at least these reasons, Applicants respectfully request reconsideration and allowance of new Claim 21.

Independent Claims 1, 8, and 15 recite certain limitations that are similar to the features discussed above. For example, Claim 1 recites "a pair of substantially planar panels formed substantially of a thermoplastic material, the panels each being cambered by a bend in the panel." Claim 1 also recites "the panels being spaced apart such that a collapsible cell is formed between the panels." As another example, Claim 8 recites "a first panel member being cambered by at least one bend in the panel . . . [and] a second panel member being cambered by at least one bend in the panel." Claim 8 also recites "the second panel spaced apart from the first panel such that a collapsible cell is formed between the first and second panels." As still another example, Claim 15 recites "the pair of panels being spaced apart such that at least one collapsible cell may be formed between the pair of panels." Claim 15 also recites "the panel members each having a cambered portion wherein the panel member is bent from its planar form to promote elastic deformation of the panel member along the cambered portion." As described above with regard to similar features of Claim 21, *Mileti* does not disclose, teach, or suggest the recited limitations. Therefore, Applicants respectfully contend that independent Claims 1, 8, and 15 are also patentably distinguishable from *Mileti*.

For at least these reasons, Applicants respectfully request reconsideration and allowance of Applicants' independent Claims 1, 8, and 15.

Claims 3-5 and 7 each depend, either directly or indirectly, from Claim 1, which Applicants have shown above to be allowable. Claims 9-12 and 14 each depend, either directly or indirectly, from Claim 8, which Applicants have shown above to be allowable. Claims 16-20 each depend, either directly or indirectly from Claim 15, which Applicants have shown above to be allowable. Claims 3-5, 7, 9-12, 14, and 16-20 are patentable at least because of their respective dependencies and further because they recite additional features not disclosed, taught, or suggested in the prior art. Accordingly, Applicants respectfully request reconsideration and allowance of dependent Claims 3-5, 7, 9-12, 14, and 16-20.

Section 103 Rejections

Claims 3 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Mileti* as applied above, and in view of U.S. Patent No. 5,746,419 issued to McFadden. ("*McFadden*"). Applicants respectfully traverse these rejections for the reasons stated below.

First, Claims 3 and 17 each depend, either directly or indirectly, from Claims 1 and 15, respectively, which Applicants have shown above to be allowable. Claims 3 and 17 are patentable at least because of this dependency and further because they recite additional features not disclosed, taught, or suggested in the prior art. For at least these reasons, Applicants respectfully contend that Claims 3 and 17 are patentable over *Mileti* and further patentable over *Mileti* in view of *McFadden*.

Second, Applicants respectfully request that the Examiner withdraw the *Mileti-McFadden* combination because the combination is improper. To establish a *prima facie* case of obviousness, an Examiner must show, among other things, some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. M.P.E.P. § 2142. As discussed above, a prior art reference must be considered in its entirety, including portions that would lead away from the claimed invention. M.P.E.P. § 2141.02. Applicants submit that *Mileti* and *McFadden* teach away from relevant aspects of Claims 3 and 17.

With regard to Claim 3, Applicants respectfully submit that both *Mileti* and *McFadden* teach away from the use of thermoplastic material comprising polyethylene. As discussed above with regard to Claim 21, *Mileti* specifically teaches that the plastic sheets 22 are fabricated from "a thermoplastic polymer ionomer resin sold by E.I. DuPont under the trademark SURLYN." (Column 2, lines 42-45). Further, *Mileti* further discloses that the the

particular materials used to form sheets 22 are important to the performance of the *Mileti* impact attenuator. *McFadden* also teaches away from the use of a thermoplastic material comprising polyethylene. Specifically, *McFadden* discloses that "conventional composite structure energy absorbers are typically made of a thermoplastic material," which is "often" polyethylene "formed with high pressure injection molding machines." (Column 1, lines 25-28). *McFadden* further discloses that "[t]he tooling required to form such an energy absorber is complicated and requires a long lead time for the tooling to be fabricated" and "that costly injection molding machines are required." (Column 1, lines 28-31). Accordingly, the energy absorber element of *McFadden* is described as being "formed in one piece through the known process of reaction injection molding using a urethane material." (Column 3, lines 25-28). As such, *McFadden* explicitly teaches away from particular aspects of the roadway crash cushion recited in Claim 3. Therefore, Applicants respectfully submit that the *Mileti-McFadden* combination is improper.

With regard to Claim 17, *Mileti* teaches away from the use of cells that are hexagonally shaped. As disclosed above with regard to Claim 21, *Mileti* discloses that the processes used to expand sheets 22 result in a "quasi-honeycomb structure" that includes "open-ended pyramidal cells 25 and 26 the axis of which are essentially parallel and extend normal to the opposite faces 27 of the sheets." (Column 2, lines 51-59). *Mileti* further discloses that the "performance" of the impact attenuator of *Mileti* is "due to the nature of the plastic material, to the thickness of the original solid sheet of plastic material and to the height to which it is drawn." As such, *Mileti* explicitly teaches away from particular aspects of the roadway crash cushion recited in Claim 17, and Applicants respectfully submit that one of ordinary skill in the art at the time of invention would not have been motivated to combine the impact attenuator of *Mileti* with the hexagonal cells of *McFadden*. Therefore, Applicants respectfully submit that the *Mileti-McFadden* combination is improper.

For at least these reasons, Applicants respectfully request reconsideration and allowance of Claims 3 and 17.

New Claims 22-37

New Claims 22-37 have been added and are fully supported by the original specification. No new matter has been added. Claims 22-37 are patentable over the prior art of record because neither *Mileti* nor *McFadden*, alone or in combination, disclose each and every element of New Claims 22-37.

Specifically, new independent Claim 22 recites "a first cambered panel having a plurality of bends; a second cambered panel having a second plurality of bends, each of the second plurality of bends corresponding to one of the first plurality of bends." As another example, new independent Claim 22 also recites diaphragms "cooperating with the first and second cambered panels to form an array of collapsible cells between the first and second cambered panels." As discussed above with regard to Claim 21, however, *Mileti* discloses that sheets 22 are in face-to-face contact with one another. The pyramidal cells within the sheets 22 of *Mileti* are formed within the plastic making up each individual sheet. Accordingly, for reasons similar to those discussed above with regard to Claim 21, *Mileti* cannot be said to disclose, teach, or suggest the above-recited features.

For at least these reasons, Applicants respectfully request consideration and allowance of new independent Claim 22.

New dependent Claims 23-37 each depend, either directly or indirectly, from Claim 22, which Applicants have shown above to be allowable. Claims 23-37 are patentable at least because of this dependency and further because they recite additional features not disclosed, taught, or suggested in the prior art. Accordingly, Applicants respectfully request consideration and allowance of new dependent Claims 23-37.

CONCLUSION

Applicants have now made an earnest attempt to place this case in condition for allowance. For the foregoing reasons, and for other reasons clearly apparent, Applicants respectfully request full allowance of all pending claims.

A completed Notification of Extension of Time and check in amount of $210.00 are included herewith. A check for $385.00 is attached to cover the cost of the Request for Continued Examination and a check in the amount of $212.00 is enclosed to cover the cost of the additional claims. Although Applicants believe that no other fees are due, the Commissioner is hereby authorized to charge any additional fees or credit any overpayments to Deposit Account No. 02-0384 of BAKER BOTTS L.L.P.

If there are matters that can be discussed by telephone to further the prosecution of this application, Applicants respectfully request that the Examiner call its attorney at the number listed below.

Respectfully submitted,
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